

Message Text

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ORIGIN COME-00

INFO OCT-01 CIAE-00 DODE-00 EB-07 NSAE-00 TRSE-00 EUR-12

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FM SECSTATE WASHDC

TO USMISSION OECD PARIS

C O N F I D E N T I A L STATE 191497

EXCON

E.O. 11652: XGDS-1

TAGS: ESTC, COCOM, US, CZ

SUBJECT: US DIGITAL-TO-ANALOG CONVERTERS TO
CZECHOSLOVAKIA - IL 1565

REF: A) COCOM DOC (75)1105

B) COCOM DOC (75)1290

C) OECD PARIS 19873

(A) THE FOLLOWING ARE US EXPERTS' ANSWERS TO FRENCH
QUESTIONS AS REPORTED IN COCOM DOC (75)1290 (PARAGRAPHS
KEYED TO THOSE OF CITED DOCUMENT):

2. THE OUTPUT AMPLIFIERS OF THE D TO A CONVERTERS WERE
HARDWARE MODIFIED TO BLOCK THE OUTPUT FOR 5 MICROSECONDS.
THE "TIME CONSTANT" SETTLING TIME IS 2 MICROSECONDS. FIVE
"TIME CONSTANTS" ARE REQUIRED TO ALLOW SETTLING TIME
THAT WILL PRODUCE 2 PERCENT FULLSCALE ACCURACY AT
66,667 CONVERSIONS PER SECOND I.E. (5 PLUS 5 TIMES 2
EQUALS 15 MICROSECONDS PER CONVERSION) FOR 14 BITS PLUS
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SIGN. INCREASING THE CONVERSIONS TO 125000/SECOND

REDUCES THE ACCURACY TO 2 PERCENT OF FULL SCALE, 7 BITS PER CONVERSION (NOT A DESIRABLE OPERATING CONDITION). USING ONE CONVERTER AT 40,000 PER SECOND RESULTS IN .04 PERCENT FULL SCALE ACCURACY FOR 14 BITS AND SIGN. SEQUENCING 8 CONVERTERS RESULTS IN 300,000 CONVERSIONS PER SECOND, .04 PERCENT FULL SCALE ACCURACY FOR 14 BITS PLUS SIGN (8 TIMES 40,000 IS APPROXIMATELY 300,000). THE REASON FOR THE MODIFICATION WAS TO OBTAIN THE DESIRED ACCURACY.

4. THESE SPEEDS ARE REQUIRED FOR SIMULATION WHICH ATTEMPTS TO APPROXIMATE YEARS AND LIFETIME IN MINUTES, HOURS AND DAYS.

6. THE NEED FOR HIGH CONVERSION RATES IS TO MAKE CALCULATIONS AND CHANGE THE DATA BEING USED IN THE SIMULATION MODEL IN A SHORT ENOUGH TIME TO CORRECT A CONDITION WHICH WOULD HALT THE SIMULATION. DATA FROM ONE OR MORE PATIENTS COULD BE COLLECTED ON PAPER TAPE TO PROVIDE THE INITIAL CONDITIONS OF THE SIMULATION MODEL. HOWEVER, FASTER SPEEDS ARE REQUIRED TO KEEP THE SIMULATION IN OPERATION. EACH SIMULATION RUN IS AN ENTITY REQUIRING VOLUMES OF HIGH SPEED DATA. THIS CAN BE FOLLOWED BY A SUCCESSION OF RE-RUNS WITH CHANGED INITIAL CONDITIONS OR AN ENTIRELY DIFFERENT SIMULATION MODEL RUN. IN GENERAL, LIVE PATIENTS ARE NOT PART OF SIMULATION RUNS ALTHOUGH IT IS POSSIBLE TO HAVE SENSORS ON THE PATIENT FOR TEMPERATURE, HEARTBEAT, ETC., FEEDING INTO THE SIMULATION MODEL.

(B) THE FOLLOWING IS IN RESPONSE TO OECD PARIS 19873:

THE HARDWARE SYSTEM PROVIDES ACCURACIES RELATED TO CONVERSION SPEED. THE CONVERSIONS TAKE PLACE UNDER CONTROL OF COMMANDS IN THE SOFTWARE PROGRAM. THE FREQUENCY OF COMMANDS IN THE PROGRAM CAN BE CONTROLLED BY THE OPERATOR TO OCCUR AT ANY RATE UP TO 125,000 CONVERSIONS PER SECOND. THIS IS ACCOMPLISHED BY DESIGNING THE PROGRAM TO ISSUE THESE COMMANDS AT THE

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FREQUENCY THE OPERATOR DESIRES. KISSINGER

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Message Attributes

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